Louisville Metro Air Pollution Control District

E01 - Emissions Inventory Report General Instructions

List of Emissions Inventory Instructions and Forms

The documents below are in either Microsoft Word 97-2003 or Microsoft Excel 97-2003 format. These documents can be downloaded from our website at http://www.louisvilleky.gov/APCD/PermitsAndCompliance/EmissionsInventoryForms.htm.

Title of Document	**Form**
Emissions Inventory General Reporting Instructions	E01
Instructions for Petroleum Product Bulk Terminals	E02
Instructions for Paint Manufacturing Operations	E03
Terms and Acronyms	E04
List of Non-VOC Organic Compounds	E05
HAP Classifications	E06
Emission Units and Processes	E10T ***(new!)***
Boiler or Process Fuel Usage	E20
Particulate Matter Data	E40
Welding (optional)	E43 ***(new!)***
Wet Cooling Tower	E44
Process/Product Usage (optional replacement for E40 and E50)	E45 ***(new!)***
VOC Solvent / Product Usage	E50
Stage I Gasoline Throughput	E54
Stage II Gasoline Throughput	E55
Process Information and Emissions	E90
Emissions Release Point Table	E91T
Control Measure Table	E92T
Plant-wide Pollutant Emissions Summary and Certification	E99
Processes.xls (optional replacement for E20, E40, E44, E45, E50 and E90)	-- ***(new!)***
Combined Report Forms.xls (optional replacement for E10T, E20, E40, E44, E45, E50, E90, E91T, E92T and E99)	-- ***(new!)***

What's New for the 2012 Emission Inventory?

Three choices for organizing your emission inventory submittal:

Option 1. **Individual forms, for large plants.** Description: *Similar to 2011 Emission Inventory submittal.* Individual forms (E10T, E90, E91T (required for changes only), E92T (required for changes only), and E99 and as applicable: E20, E40, E43, E44, E45, E50, E54, E55.)

Option 2. **Processes.xls, newly designed for medium sized plants.** Description: *Ideal for plants with less than 30 emission units and processes.* A copy of Processes.xls for each process, combined with one E10T, E91T (required for changes only), E92T (required for changes only), and E99 to make a complete submittal. (Process.xls is a compilation of the E20, E40, E43, E44, E45, E50, E54, E55, and E90)

Option 3. **Combined Report Forms.xls, newly designed for small plants.** Description: *Ideal for small plants, with less than 10 emission units and processes.* Combined Report Forms.xls (a compilation of forms) will make a complete submittal.

Note: Regardless of which option you choose, submit the forms in both hardcopy and electronically, with supporting calculations, in the original file format (e.g. Excel), on a CD, flash drive or in an email to allow APCD to review your calculations and store the submittal electronically.

New and modified forms for the 2012 Emission Inventory:

- Reformatting of all forms.
- Form E10T – Emission Units and Processes
- Form E20 – A correction was made to the formula for annual average sulfur % wgt for other fuel.
- Form E43 – Welding Form, optional
- Form E45 – An option to replace the E40 and E50 Forms.
- Form E90 – Emission factors are required for each pollutant, if appropriate.

How does a facility develop its Annual Emissions Inventory Report?
Emissions need to be estimated for *each individual emission process/point*. The following list includes some common terms used in the context of developing an emissions inventory:

- Emission unit: A part or activity of a stationary source that emits a regulated air pollutant. An emission unit contains one or more emission processes or points. For example, two boilers can be combined in one emission unit, U1.
- Emission process: A process, activity, or grouping of similar or interconnected equipment that can generate the same set of air pollutants and whose emissions are controlled by a common air pollution control measure or have no control measure. For example, E1, painting operation, or E2, sandblasting area, can be called an emission process.
- Emission point: A process, piece of equipment, group of equipment, or portion of a process where air pollution emissions can be generated. A unique identification number is assigned

to each emission point at the facility in its operating permit. An "emission point" should not be confused with a "release point," such as a stack or vent.
For Emissions Inventory purposes consider <u>Emission process = Emission point.</u>
Note: If your permit does not accurately reflect your operations, please propose different emission units and emission processes/points that do reflect your operations.

- <u>Release point</u>: A physical location where emissions are released into the atmosphere. A unique identification number will be assigned to each release point at the facility (for example, S1 = Stack 1, F1 = Fugitive 1, etc.). Emissions from each process must be allocated to one or more release point(s). This is called release point apportionment.
- <u>Control measure</u>: A device or measure used to control air pollution emissions at the facility. A control measure can be a control device, such as a scrubber or baghouse, or a practice, such as submerged filling (for example, C1 = scrubber, C2 = baghouse, C3 = submerged filling of tanks). Please note that a control measure is not tied to a specific process, therefore, multiple processes can use the same control measure.
- <u>Emissions pathway</u>: The path, from generation to release, that air pollution emissions take within the facility. The emissions path must include an emission process/point, release point and release point apportionment, and a control measure if applicable.

To develop an accurate Emissions Inventory, each emission process/point at the facility must be identified. Using all tools – including, but not limited to, plot plans, site maps, comprehensive process flow diagrams, and knowledge of the site's processes – list all equipment and operations that may result in air emissions. Examples include:

- combustion sources
- storage tanks
- loading operations
- piping component fugitive areas
- wastewater collection and treatment system
- process areas (for example, building vents, process vents, or reactors)
- evaporative losses (for example, from surface coating, solvent degreasing, railcar or tank truck cleaning, or printing operations)
- plant roads
- welding operations
- conveyer belts

Information regarding activity level (for example, throughput, hours of operation, fuel usage, etc.), emission factors, control capture efficiency, and release points (that is, stacks or fugitive) as well as actual emissions must be provided for each emission process/point.

For each emission process/point, provide activity level (throughput) information on the applicable form (E20, E40, E44, E45, E50, etc.). Form E90 is required for reporting the emissions from each of the above emission processes/points. To complete the description of an emission pathway, as described below, please list all control measures on Form E92T and all release points (stack/fugitive) from each emission process/point on Form E91T. Please organize your submittal so that each emission process/point can be linked to its pathway easily.

What is an Emissions Pathway?
The emission process/point, control measure(s), release point(s), and amount of emissions come together to define an "emissions pathway." This path follows an air pollutant's origin, from its creation by the emission process/point, to its abatement by the control measure, and to its entrance into the atmosphere via the release point (stack/fugitive). It is important to note too that a path traces emissions from *one emission process/point to one release point*, with or without a control measure. In other words, a path traces only one route that emissions from an emission process/point travel to reach the atmosphere. If one emission process/point is linked to more than one release point, then multiple paths exist.

Example of Emissions Pathway with Associated Emissions Inventory Forms:

Emission process/point	Control measure →	Release points (stack/fugitive) →	Emissions
E1 (E20, E40, or E50)	C1 (E92T)	S1/F1 (E91T)	(E90)

For another example of this concept, consider a paint booth (emission process/point) with three exhaust vents (release points). In this case, three different emissions pathways exist because there are three different routes the emissions travel to enter the atmosphere.

How are emissions estimated?
Emissions can be calculated in several ways. Examples of how to track emissions include:

- Mass balance – Tracking inputs and outputs of materials to account for the portion that is emitted to the air. This method works well with uncontrolled use of solvents and volatiles that evaporate during use.
- Emission factors and emission models – Ratio of emissions to production or usage rate for various processes. For example, 0.6 lb SO_2/1,000,000 cubic feet natural gas burned. For more information, see EPA's AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources.
- Direct measurement – Stack testing and in-stack electronic monitoring provide emission amounts.

Other defensible emission calculation techniques may be used to estimate emissions. Please provide all the supporting documentation, calculation, and spreadsheets to support your emissions estimates.

What You Need to Do

- For an accurate completion of the individual forms, please read the specific instructions included with them.
- Your Annual Emissions Inventory Report submission should contain all emissions data, supporting documentation, and all calculations. Please include the method or source for the calculations if a method not already approved by APCD is used. Upsets, downtime, fugitive emissions, and insignificant activity emissions should also be included in the calculations. If EPA emission factors are used, please use updated current values from AP-42.
- Provide a process flow diagram or a plot plan illustrating emission processes/points (E1, E2, etc.) and how they are linked to release points (S1, S2, F1, F2, etc.) with or without control measures (C1, C2, etc.).
- The Plant-wide Pollutant Emissions Summary and Certification Form, E99, is required for all submissions and must be signed by the Responsible Official.

- **The 2012 Annual Emissions Inventory Report must be postmarked no later than April 15, 2013.** Failure to comply by this date subjects your company to a Notice of Violation and payment of penalties. The Emissions Inventory Report should be mailed to:

  LOUISVILLE METRO AIR POLLUTION CONTROL DISTRICT
  850 BARRET AVENUE
  LOUISVILLE, KENTUCKY 40204-1745

APCD is automating its database to assist in its federal emissions inventory submission process. Please feel free to provide any comments or suggestions on this reporting package that would make improvements to material content or that would make the process clearer and easier in the future. The goal is to assist in the preparation of an accurate emissions inventory and to reduce the paperwork process. All suggestions are welcome.

Please do not hesitate to contact APCD staff with any questions concerning your emissions inventory. It may be helpful to discuss your operations before preparing the emissions inventory.

Background

In compliance with the Clean Air Act Amendments and the Air Emissions Reporting Rule (40 CFR Part 51 Subpart A), APCD conducts annual inventories of air emissions from point sources and periodic inventories of those from area sources, nonroad mobile sources, and onroad mobile sources.

What is an Emissions Inventory?

An emissions inventory is a list of sources of air pollution and the amount of each pollutant emitted into the atmosphere. The inventory includes criteria air pollutants (CAPs) and hazardous air pollutants (HAPs) for sources throughout Jefferson County.

Why does APCD collect Emissions Inventories?

In order to understand air quality in our region, we must know the sources of air pollution. Emissions inventories facilitate air quality policy, planning, outreach, and regulation development. State and local air pollution control agencies are required to submit emissions data for CAPs and HAPs to the EPA's National Emissions Inventory for point sources, area sources, and mobile (onroad and nonroad) sources. Point source information is collected annually by surveying permitted facilities for specific emissions data through their Annual Emissions Inventory Report. Area and mobile source information is developed every three years (2008, 2011, 2014, etc.) by estimation and modeling.

Emissions inventories are the basis for numerous efforts, including the analysis of air quality trends, the consideration of the impact of regulations on air quality, and the development of human exposure modeling. In addition, inventories are used in local and regional emissions modeling, which can help us understand current air quality and forecast future trends in the Louisville Metro area. Quality emissions inventories:

- lead to a more thorough consideration of certain industries or emissions sources;
- provide the foundation for the development or evaluation of control strategies;
- aid in the evaluation of regulation effectiveness;
- serve as a basis for emissions fee programs, permitting, and air quality assessments; and
- support the development of new methodologies and techniques for estimating emissions (including emission factors).